ETM350C ETM450C User Manual 201405RV01.docx

3G Industrial Ethernet Router

ETM350C & ETM450C
User Manual

Features:

- HSDPA/UMTS 850/900/2100MHz // 850/900/1900/2100MHz
- GSM/GPRS 900/1800MHz // 850/900/1800/1900MHz
- HSPA 14.4Mbps DL, 5.76Mbps UL (ETM450C only)
- UMTS 384Kbps UL, 384Kbps DL
- 1 x Ethernet Port 10/100Mbps
- RJ12 Port for power connection
- SMA Antenna Connector
- Supports Dual SIM with automatic failover

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For Support Contact +61-2-9956-7377
Or support@etmpacific.com.au

Introduction

Nomenclature

The ETM350C (superseded, but included for reference) incorporates the Cinterion EU3-P engine and is intended for use in Asia, Australasia, and Europe (network and regulatory approvals permitting).

The ETM450C incorporates the Cinterion PH8-P engine and is intended for use in Asia, Australasia, and Europe (network and regulatory approvals permitting).

Overview.

The ETM350C/450C is an industrial 3G Ethernet Router utilising the Cinterion EU3-P module to provide reliable always on wireless connection for M2M communications requirements.

Terminal Nomenclature/History		
Model	**Comment**	**Module Installed**
ETM350C	Superseeded	EU3-P
ETM450C	First Release	PH8-P

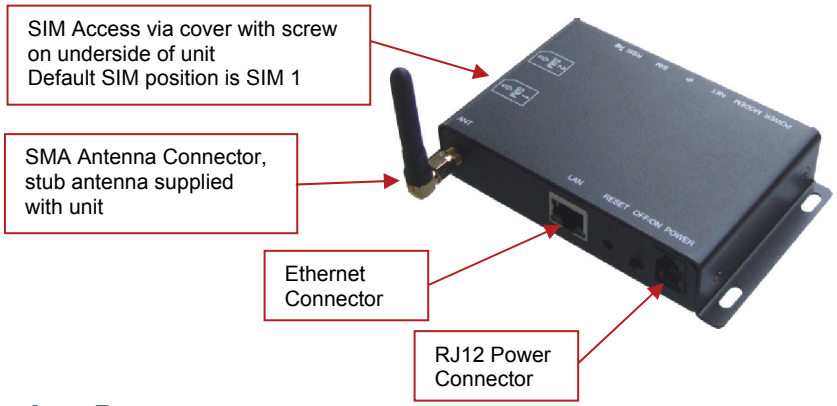
Applications

Typical applications include:

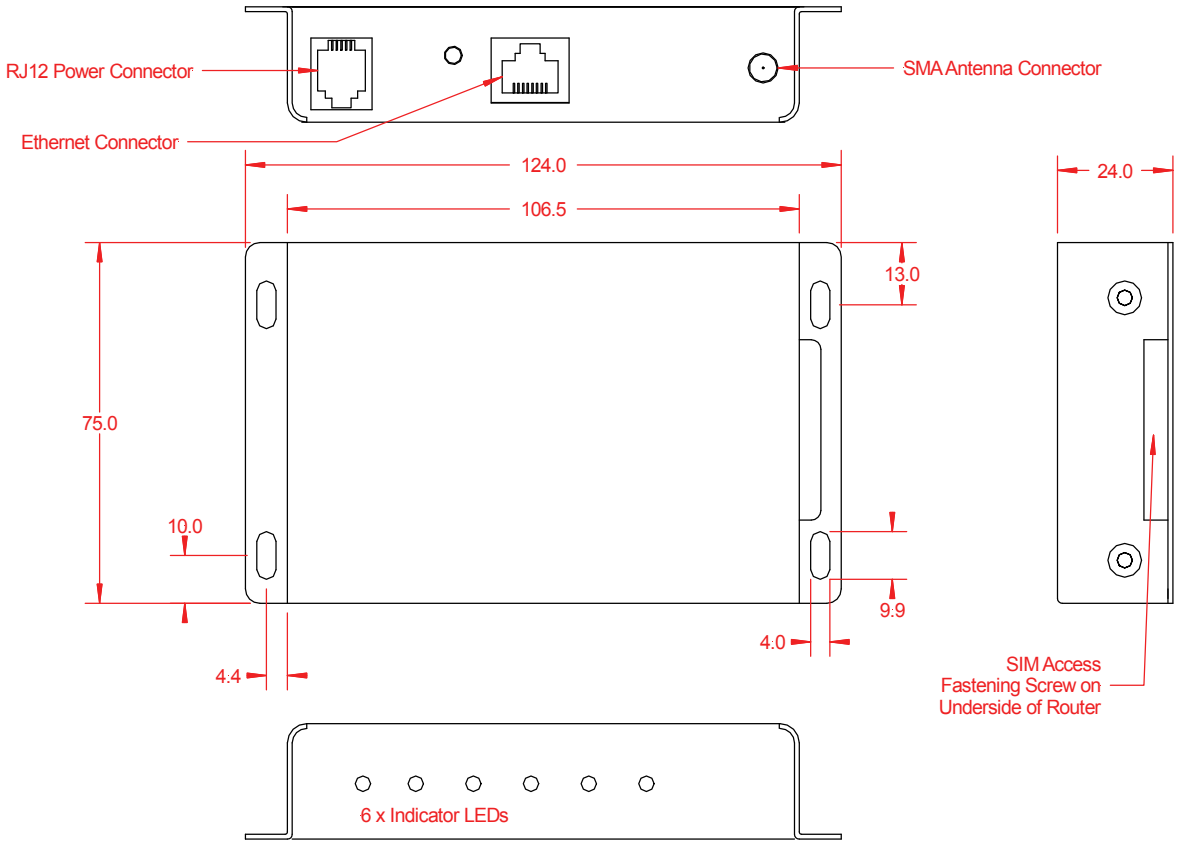
- Communications link to concentrators/receivers for Metering
- Communications link to Programmable Logic Controllers (PLCs)
- Communications link for Security Systems
- Telemetry applications
- Backup communications

Specifications

Feature	ETM350C	ETM450C
3G UMTS/HSDPA Frequency Bands	850/900/2100 MHz	850/900/1900/2100 MHz
2G GSM/GPRS Frequency Bands	900/1800 MHz	850/900/1800/1900 MHz
SIM Voltage	1.8V & 3V	1.8V & 3V
Supply Voltage	5 to 30VDC	5 to 30VDC
Power Consumption	600mA @ 12VDC	600mA @ 12VDC
Weight	260g	260g
Operating Temperature Range	-20°C to +60°C	-20°C to +60°C

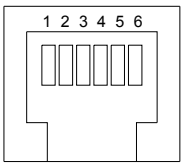

SIM Access via cover with screw on underside of unit
Default SIM position is SIM 1
SMA Antenna Connector, stub antenna supplied with unit
Ethernet Connector
RJ12 Power Connector

Product Drawing



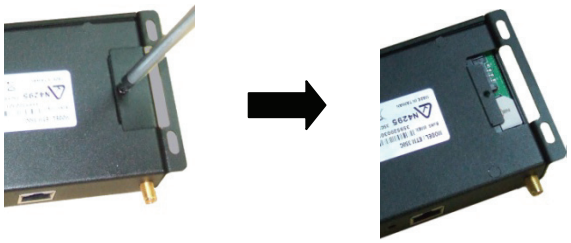
Power Supply

The ETM350C/450C power connection is a 6 pin RJ12 connector, pin allocations are shown below.

Pin	Function	Looking at Router RJ12 Socket
1	Power Supply (+5 to +30VDC)	
2	Not Used	
3	Not Used	
4	Not Used	
5	Not Used	
6	GND	

SIM Card

The SIM card slots are located on the underside of the ETM350C/450C Router. The unit supports both 3V and 1.8V SIMs. Any SIM card used needs to be correctly provisioned for the services and network upon which it is intended to be used.



Caution
Always disconnect power supply before inserting or removing SIM Card.

SIM Pin

If the SIM used has a PIN either;

- The unit can be configured to enter the SIM pin via the Web Based Management Interface.
  OR
- The SIM PIN should be deactivated, insert the SIM in a mobile phone and deactivate the SIM PIN then transfer the SIM into the router.

Indicator Lights

LAN

The ETM350C/450C can connect to a Host PC, HUB, Router etc using the embedded 10/100 LAN port. The RJ-45 connector (LAN port) has two Link-LEDs. The table below shows the each status of LAN connection.

LED	State	Description
Green	ON	Indicates 10Mbps LAN connected.
	BLINK	Indicates data activity on 10Mbps LAN.
	OFF	Indicates 10M LAN disconnected.
Orange	ON	Indicates 100Mbps LAN connected.
	BLINK	Indicates data activity on 100Mbps LAN.
	OFF	Indicates 100M LAN disconnected.

Status LEDs

The ETM350C/450C has 6-State LED for indicating the current status.

LED	Display	Description
Power	ON	Indicates that power is on
	OFF	Indicates that power is off
Modem	ON	Recognizes the HSPA modem
	OFF	Does not recognize the HSPA modem.
Net	BLINK	When there is data on the wireless mobile network
	OFF	When there is no data on the wireless mobile network
IP	ON	Mobile IP has been acquired from ISP
	OFF	Mobile IP has not been acquired from ISP
SIM	ON	The U-SIM card is ready
	OFF	The U-SIM card is not ready
RSSI	FLASHING	1 quick flash with 4 seconds off for low signal level
	FLASHING	2 quick flash with 4 seconds off for medium level
	FLASHING	3 quick flash with 4 seconds off for high level
	FLASHING	4 quick flashes for 'excellent' signal
	OFF	Poor or no signal

Installation

The ETM350C/450C is a wireless mobile internet access device for connecting a PC or other LAN device to a cellular wireless service.

Please follow the steps below when you install this device.

- Insert U-SIM card. There are 2 positions for SIM1 and SIM2. Only 1 SIM is required, the second SIM is optional.
- Default position is SIM1.
- Connect an appropriate antenna.
- Connect the LAN cable between PC or LAN Device and the LAN port of the ETM350C/450C.
- Connect the power adapter.
- Turn on the power switch (if fitted).

Checking Correct Operation

The ETM350C/450C connects by PPP (NAT Router) and the “Always on-line Mode” is the default state. When you get this device for the first time, please check whether the devices settings are appropriate for your application.

The following steps can be used to check the device is operating correctly.

1. Install ETM350C as above
   Ensure the LAN cable is connected between the Device and the ETM350C/450C.
2. When power is applied, the Power LED should turn ON.
3. The Modem LED should turn ON within 20 seconds
4. The SIM LED should turn ON within 60 seconds
   If the LED does not turn ON in 60 seconds, then check the SIM card and ensure it is inserted correctly
5. The NET LED should blink asynchronously whenever data is being transferred or received
6. The RSSI LED blinks when a signal is present
   If RSSI LED is off, check the antenna connection and/or location and suitability
7. The IP LED turns ON when the unit has logged on the network and has acquired an IP address

Understanding basic operation

There are some basic operations of ETM350C/450C.

Modem Router Mode

In Modem router mode, and when the ETM350C/450C has an IP address, the ETM350C/450C shares the allocated IP with any connected Host devices via NAT. In this mode the ETM350C/450C acquires its IP from the mobile network and the device connected to the ETM350C/450C has a private IP allocated via DHCP from the ETM350C/450C.

There are two options for operation in Modem Router Mode, Always On-line and Demand On-line under Manual mode. For setting these options, refer to the [WAN] settings section.

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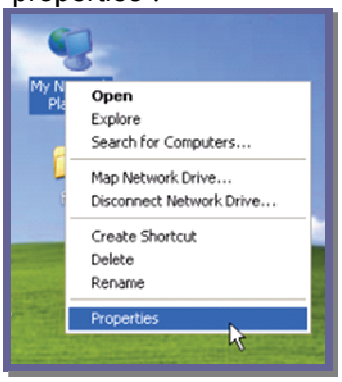
Accessing the Internet Using the ETM350C/450C

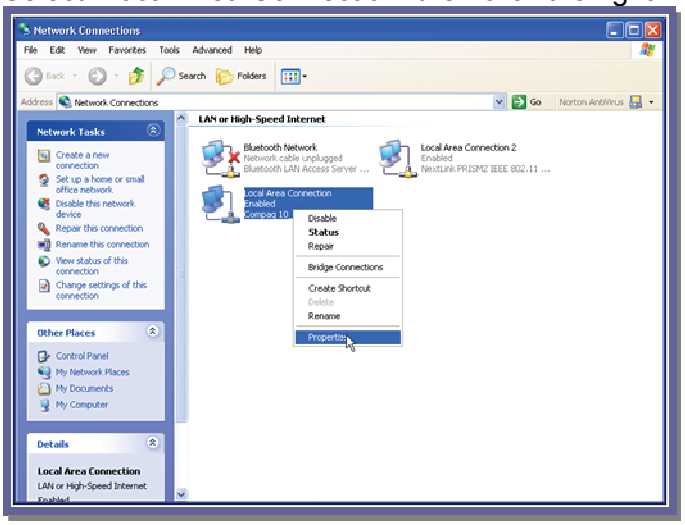
By default the ETM350C/450C should be set to Modem Router Mode - Always On-line Mode.

Setting Host PC's Network Environment

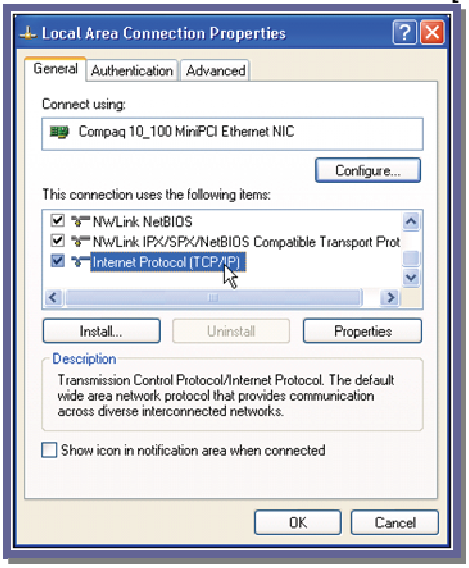
Assuming Windows XP, click "My Network Places" and then click the right mouse button and select "properties".



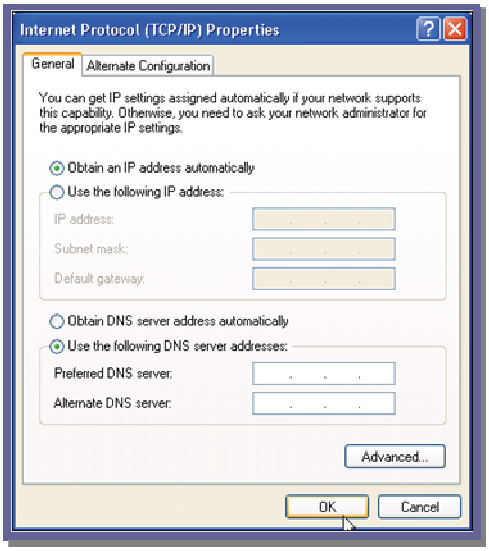
Select "Local Area Connection" then click the right mouse button and select "Properties"



Double click the "Internet Protocol [TCP/IP]" item.



Check the “Obtain an IP address automatically” then click the [OK] button.


Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Host PC’s setting is finished. Connect a LAN cable and a power cable on ETM350C/450C. Wait until the “IP” LED is on at which time you will be able to access the Internet.

Web Based Management Interface

Setting Up a PC to Use the Web Based Management Interface

You can configure the ETM350C/450C via the Web Based Management Interface. The steps required to set up the interface are;

1. Set Network environment as indicated in the previous section.
2. Connect the LAN and power cable to the ETM350C/450C.
3. Launch the web browser on your PC (such as Internet Explorer) then enter the following address, https://192.168.0.1/home.asp (Set by default). This router is designed for secure environments.
   The pop-up window of the login page appears.

   The default access settings are;
   User name: admin
   Password: admin
   You can change these settings via the [System config] page -> [SYSTEM] menu.
   When the correct information is entered the Web Management Interface will open.

Saving Configurations Changes

After making configuration changes you must click [Apply Changes] and reboot the ETM350C/450C for the changes to take effect.

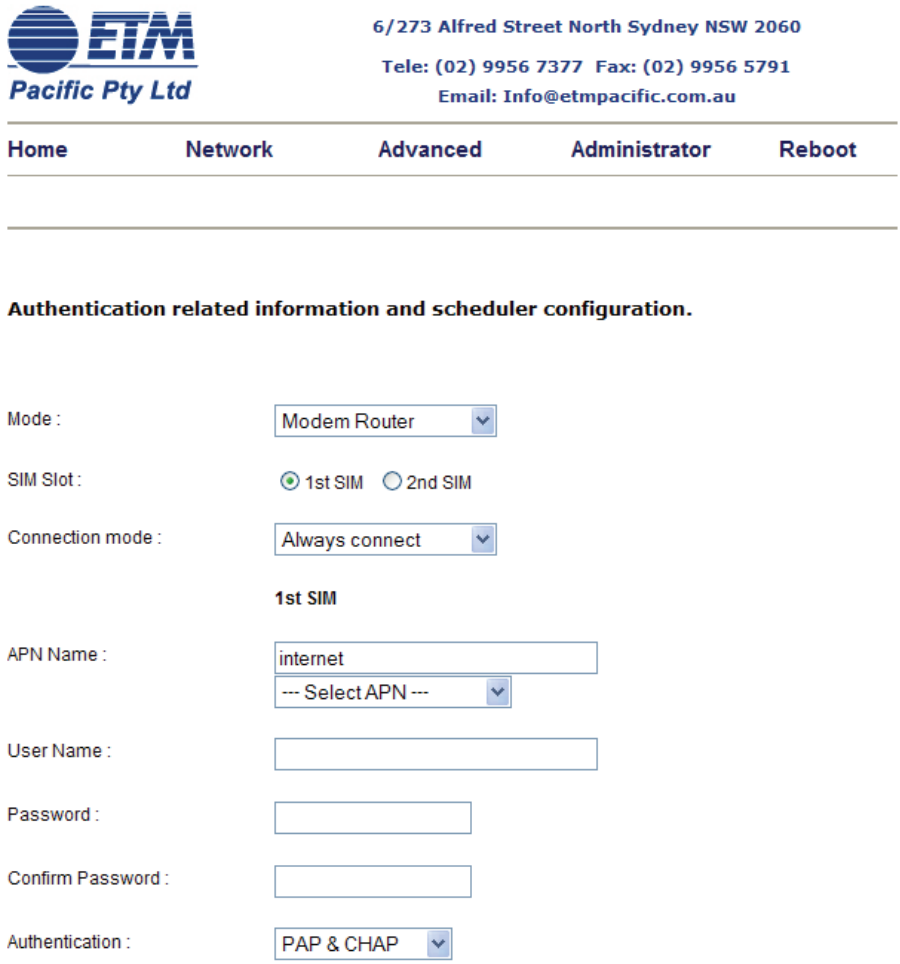
Connections Settings

After successfully logging in to the unit, you will see the Home page as below.

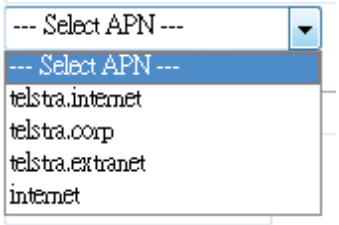
ETM
Pacific Pty Ltd
6/273 Alfred Street North Sydney NSW 2060
Tele: (02) 9956 7377 Fax: (02) 9956 5791
Email: Info@etmpacific.com.au
Home
Network
Advanced
Administrator
Reboot
Up Time : 0day : 0h : 24m : 44s
IMEI : 359520030174738
Firmware Version : 1.0.38 [201112091515]
Area Information : LAI(50501), LAC(152), CellID(00ca41a2)
Current SIM Slot : 1
PIN Status : PIN request deactivated
Signal Level : -73 dBm
WAN (Modem Router) Connecting
LAN IP : 192.168.0.1 (Up : 327 KBytes, Down : 125 KBytes)

Up Time: The time period that the router has been on.
IMEI: ID Number of router.
Firmware version: Router's firmware version.
Area Information: Cell station router is connecting to.
PIN Status: SIM PIN status.
Signal level: Signal strength.
As an example -65dbM is better than -80dbm.
WAN: Indicates whether the router is connected to a network or not.
If connected, it will show the IP address that the Network has assigned to this router, and the volume of data that has been upload/download during the current session.
LAN: IP address of this router within local network.

WAN Settings

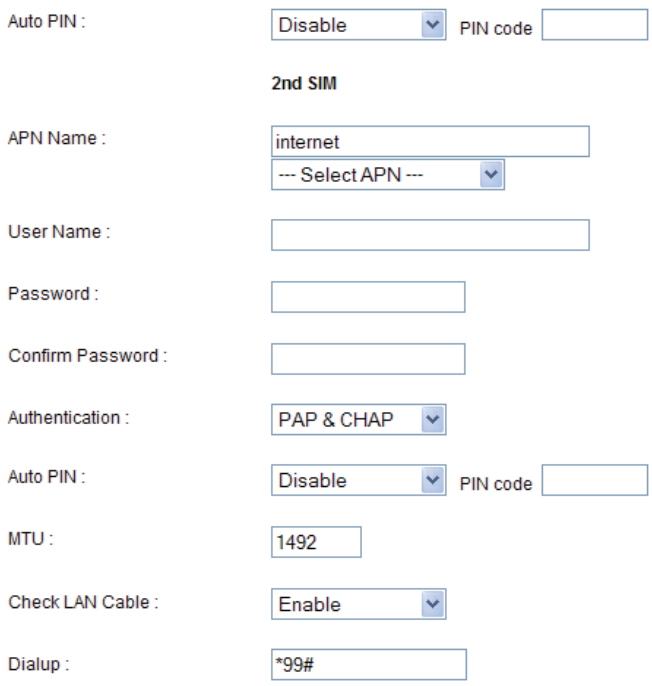


Mode: Select either **Modem router** or **Disabled**. Default is **Modem Router**
SIM slot: Select either **SIM1** or **SIM2**.
APN Name: Depends on the service provider used. For example, in Australia, Telstra has following different APN names. Please choose correct one for your service. Default is "**internet**"



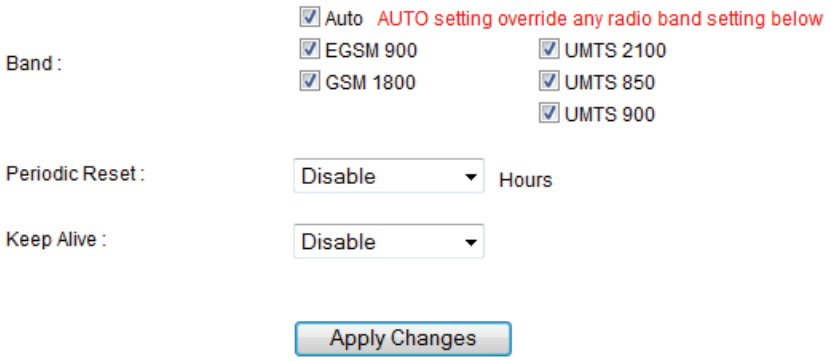
Username: Username for your account if required.
Password: Password for your account if required.
Authentication: Select PAP or CHAP or both. Default is PAP & CHAP.

The unit (version1.0.38 firmware or above) supports Dual-SIM failover thereby providing redundancy when two SIM cards are used. This feature allows for automatic failover to a secondary service should the primary service become unavailable due to a signal problem, incorrect programming or failure of the SIM.



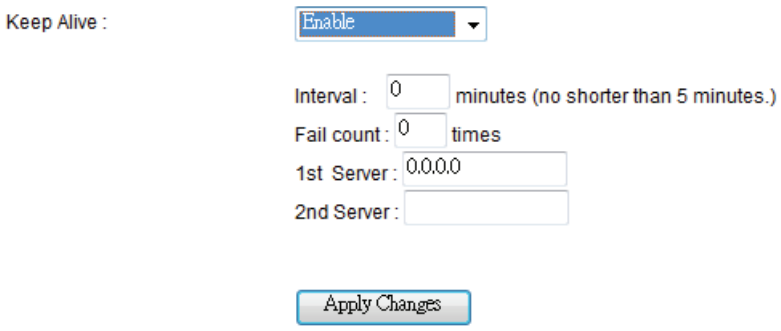
Auto PIN: To choose from **Disable** or **enable**. If you choose **enable**, Router will enter PIN code automatically each time router is power on.
Keep your PIN code in safe place. If it fails 3 times, the SIM card will be blocked. You will then need to ask your service provider to give you the PUK code to unlock the SIM.
For 2nd SIM, please enter the relevant settings. If the 2nd SIM is provided by different Operator, then the settings may be different.

Check LAN Cable: If this option is enabled then the unit will disconnect the modem from the carrier whenever the LAN cable is disconnected or the connected device is inactive.



Band: Set to Auto or choose appropriate bands. Default is Auto.
Periodic Reset: Router will be reset according to preset timer. Value is from 1-24 hours. The default is Disable.

Keep Alive: This is to make sure that router is on-line all the time. If **enable** is chosen, the router will ping the nominated IP address with **interval** time and IP set by user on **1st** or **2nd** or both server. The 'ping fail' count is incremented only if all configured servers fail to respond. If the **count** reaches the preset value then the router will be reset and re-connect again.



LAN Settings

Gateway IP: Select either **Static** or **DHCP Client**. If Static is chosen, the Router will use the static IP address shown on "IP address". If DHCP Client is chosen, the Router IP address will be assigned by connecting host. Default is Static.

IP Address: To assign IP address for Router. Default is 192.168.0.1

Subnet Mask: Default is 255.255.255.0

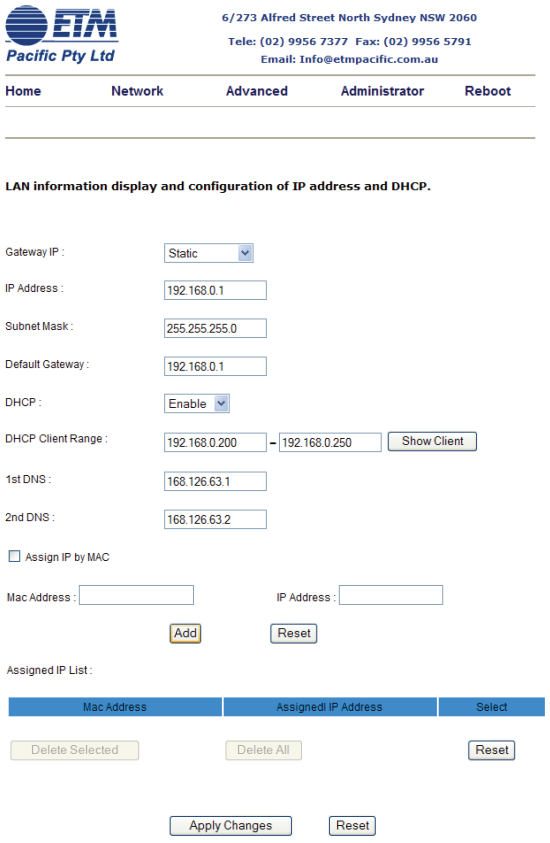
DHCP Client Range: This is the range that Router will assign IP address to devices which connect to this router. Default is **192.168.0.200-192.168.0.250**

1st DNS: DNS address. Default is 168.126.63.1

2nd DNS: DNS address. Default is 168.126.63.2

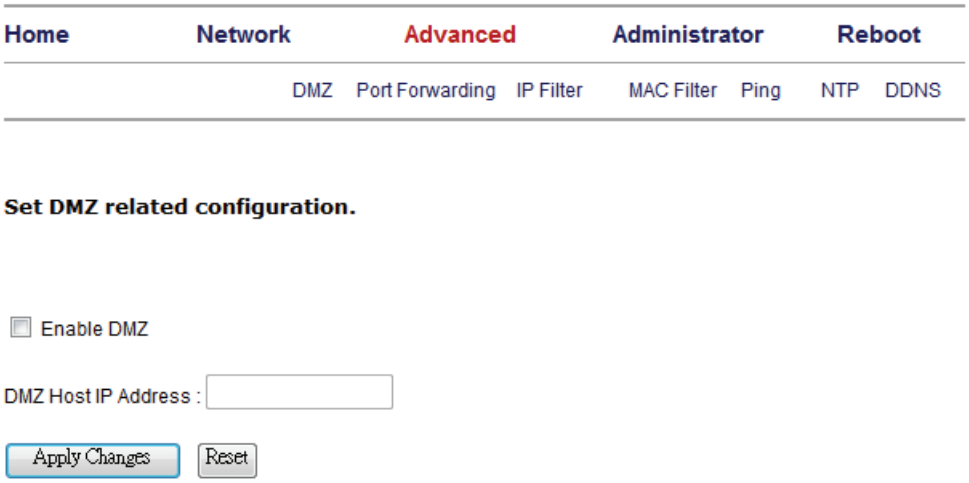
Assign IP by MAC: Allows specific MAC addresses to be assigned to specific IP addresses

When you have finished these settings, you must click on the [**Apply change**] button.



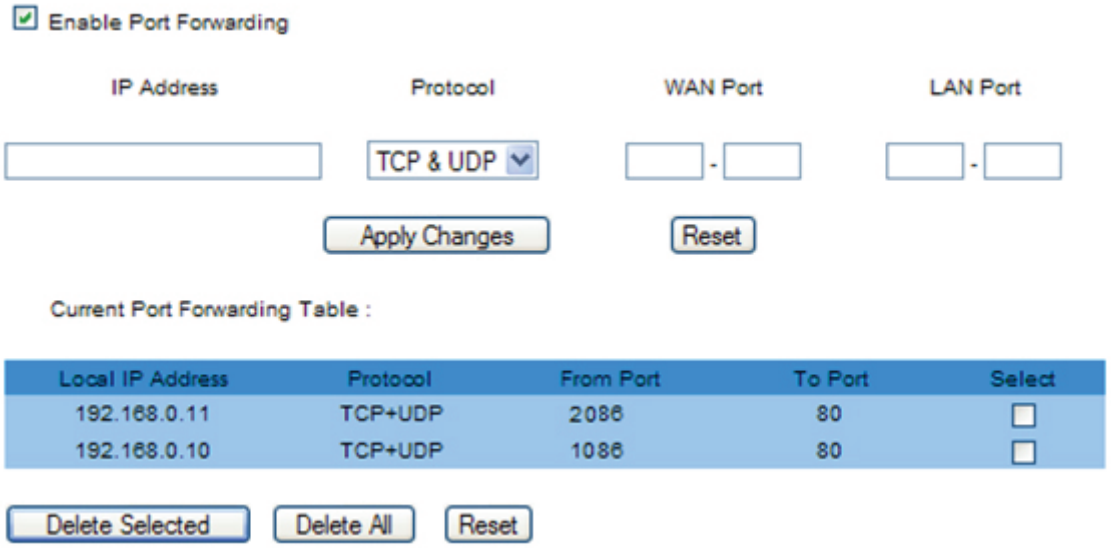
DMZ Configuration

If **DMZ** is **Enabled**, please enter **DMZ Host IP address**. Default is disabled.



Port Forwarding

If **Port Forwarding** is **enabled**, a user can connect to devices via the Router.
For example, there are 2 pieces of IP camera, Camera A with IP address 192.168.0.11 with port 80 (preset inside of camera) and Camera B with IP address 192.168.0.10 also with port 80.



IP address: Type in device IP address.
Protocol: To choose from TCP, UDP or both.
Port Range: To enter port number or range.
Apply Changes: After Apply Changes is clicked, the setting will be added to **Current Port Forwarding Table**. *(after applying changes reboot the router and confirm correct settings once reboot complete)*

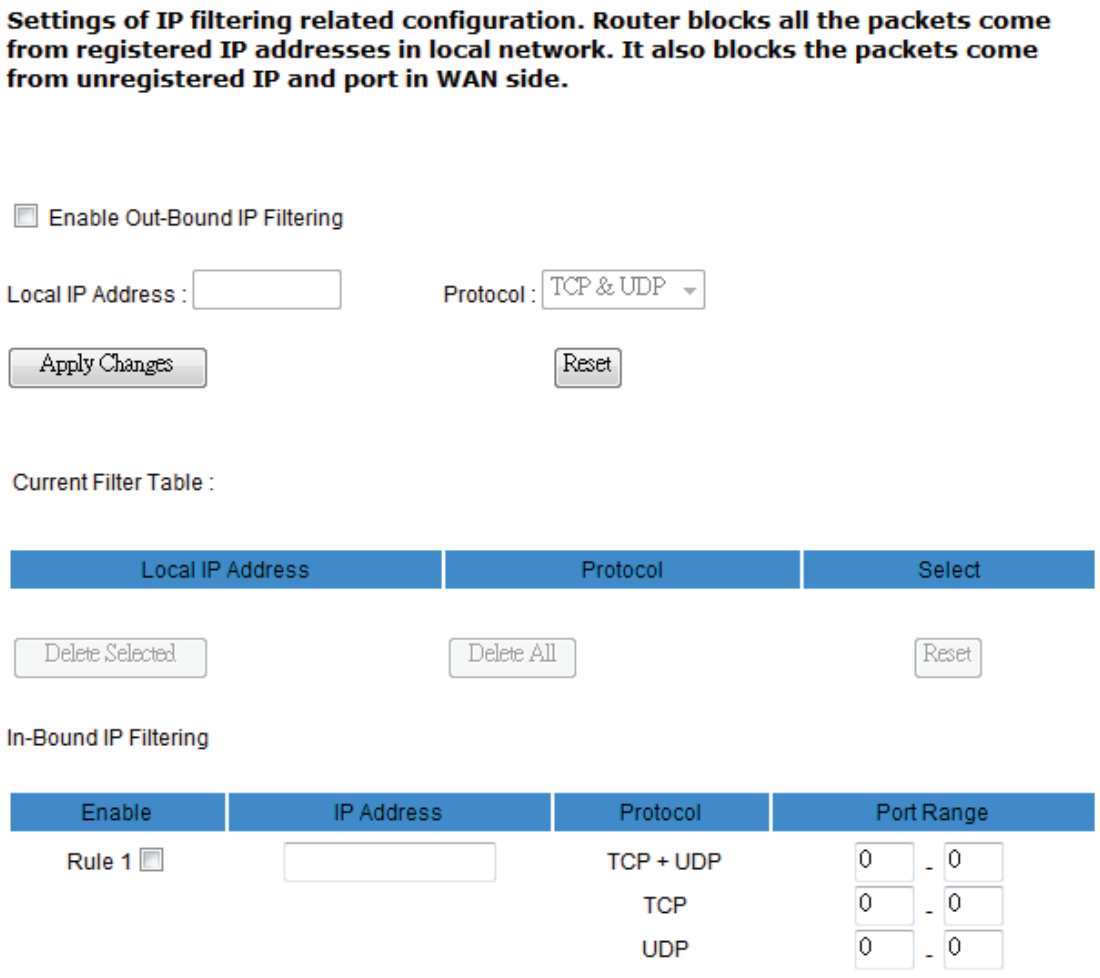
Note, for firmware versions 1.1.10 and later it is possible to have multiple devices with the same destination port on different IP addresses on the LAN (a suitable switch is required) as long as the destination port on the WAN is not the same (refer to example above).

Note for firmware versions prior to 1.1.10, multiple IP addresses with the same destination port on the LAN are not supported. In addition the port range must increment by at least 1, ie to use a LAN port of 80 set the range as 80 to 81.

IP Filter Settings

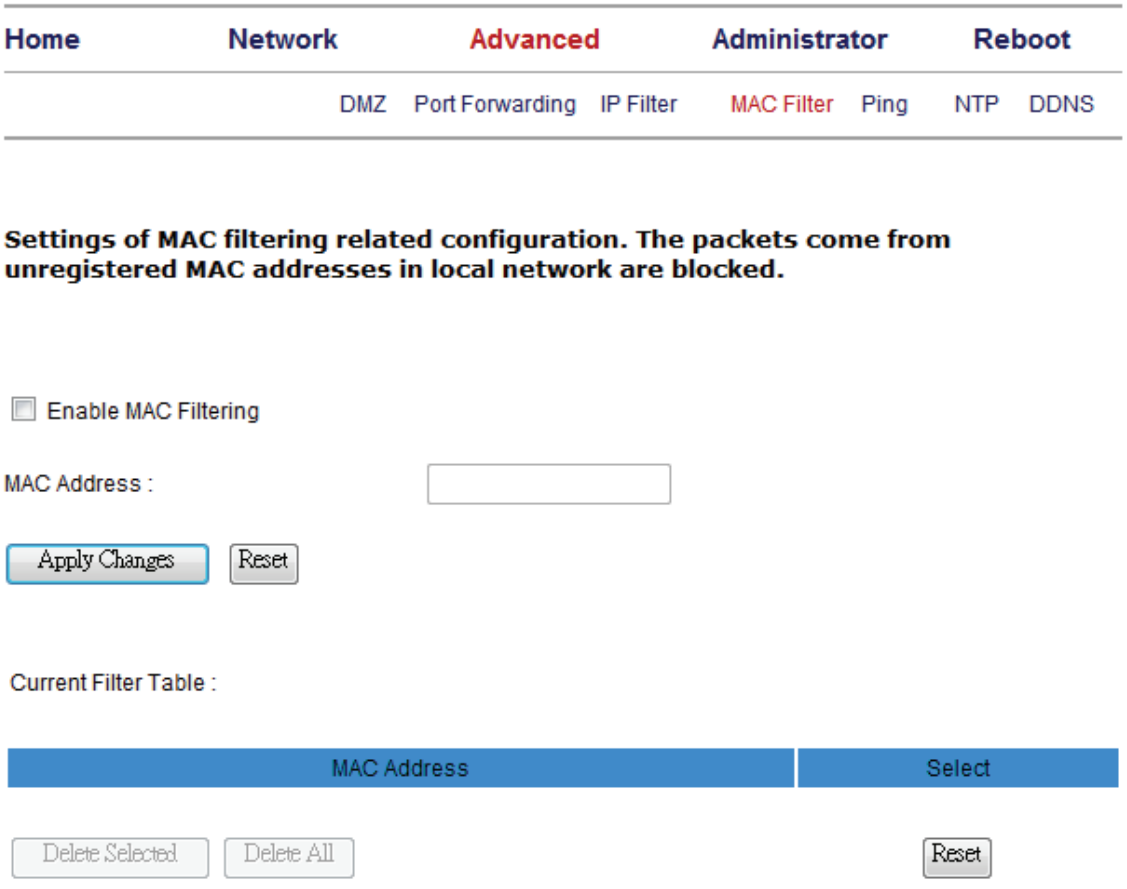
IP filtering is used to block un-wanted users either from local or remote side.

Out-bound IP Filtering: Enable this function will block all registered IP address on Local network.
In-Bound IP Filtering: Enable this function will block all unregistered IP address to send in packet. Only registered IP address can send in packet under rule's restriction.
Rule: If Rule is click, the IP address can send it packet.
Protocol: It can define to allow TCP, UDP or both to communicate.
Port Range: It specifies port number or range to accept.



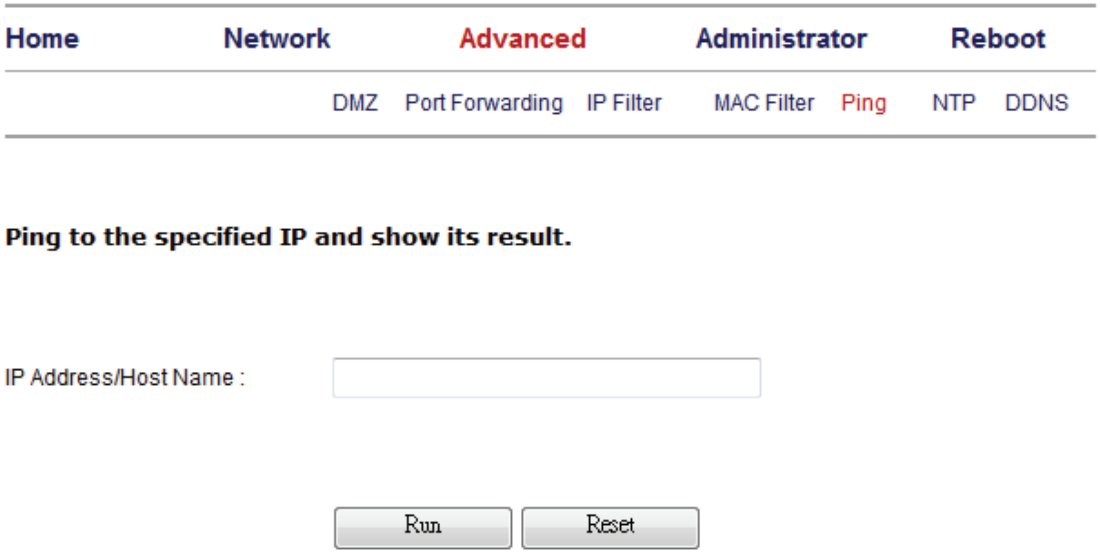
Mac Filter Settings

Mac Filtering is used to block all un-wanted users if their equipment's Mac address is not registered.
If Mac Filtering is enabled, please enter Mac address and apply changes. Only registered Mac addresses can access this router.



Pinging

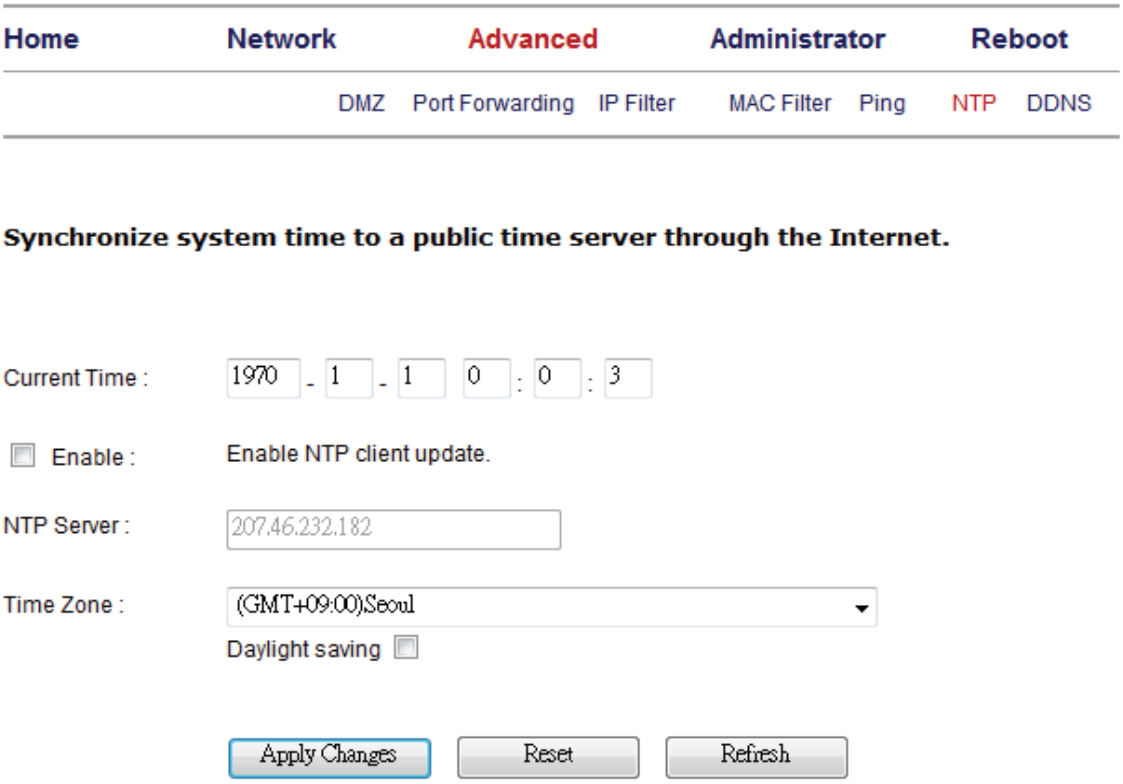
Enter IP address and click [Run], Router will ping this IP address and show result.



NTP Settings

This is to synchronize router timer with public time server.

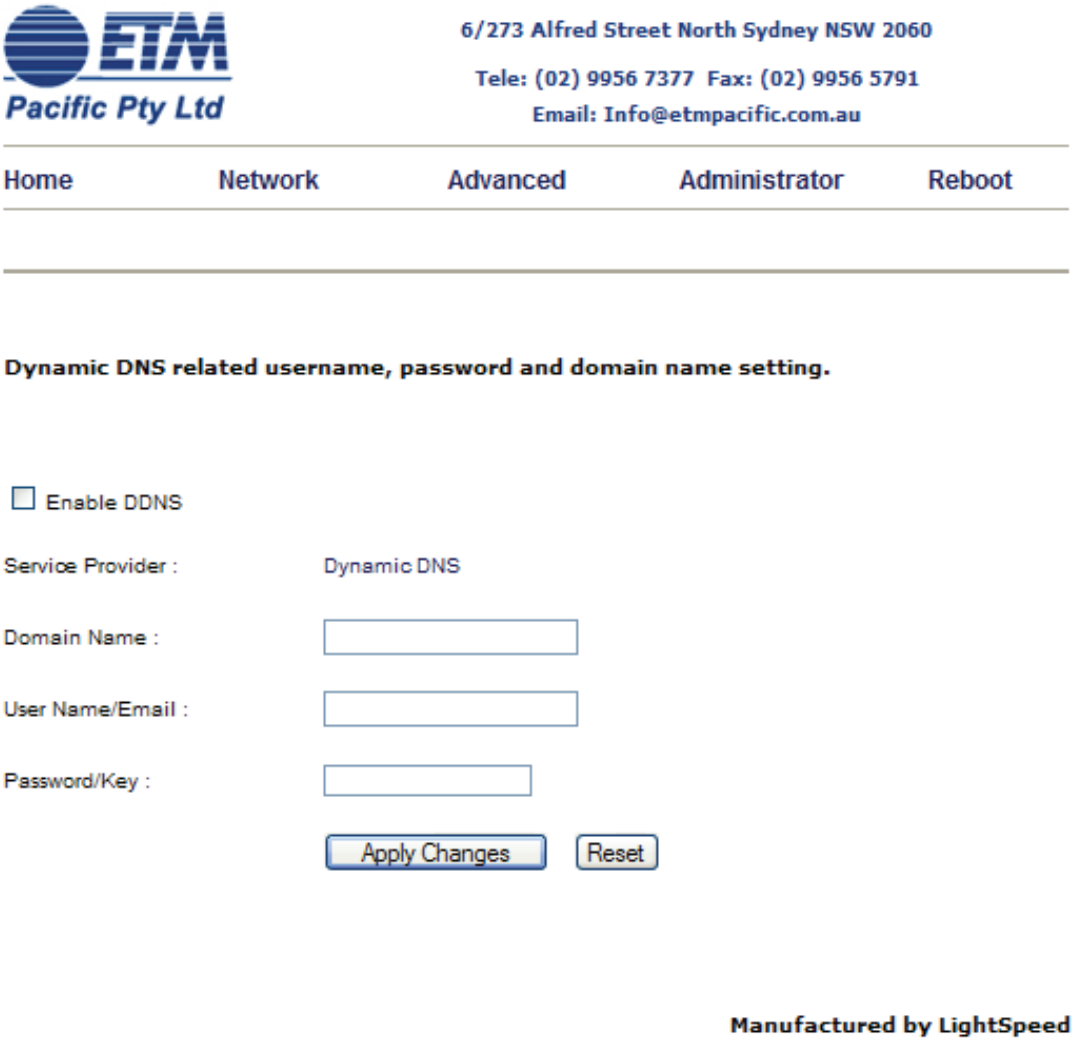
Enable NTP client update will synchronize to public time server.
Time zone: Select which time zone to use.
Daylight saving: Click if Daylight saving is in use.



DDNS Settings

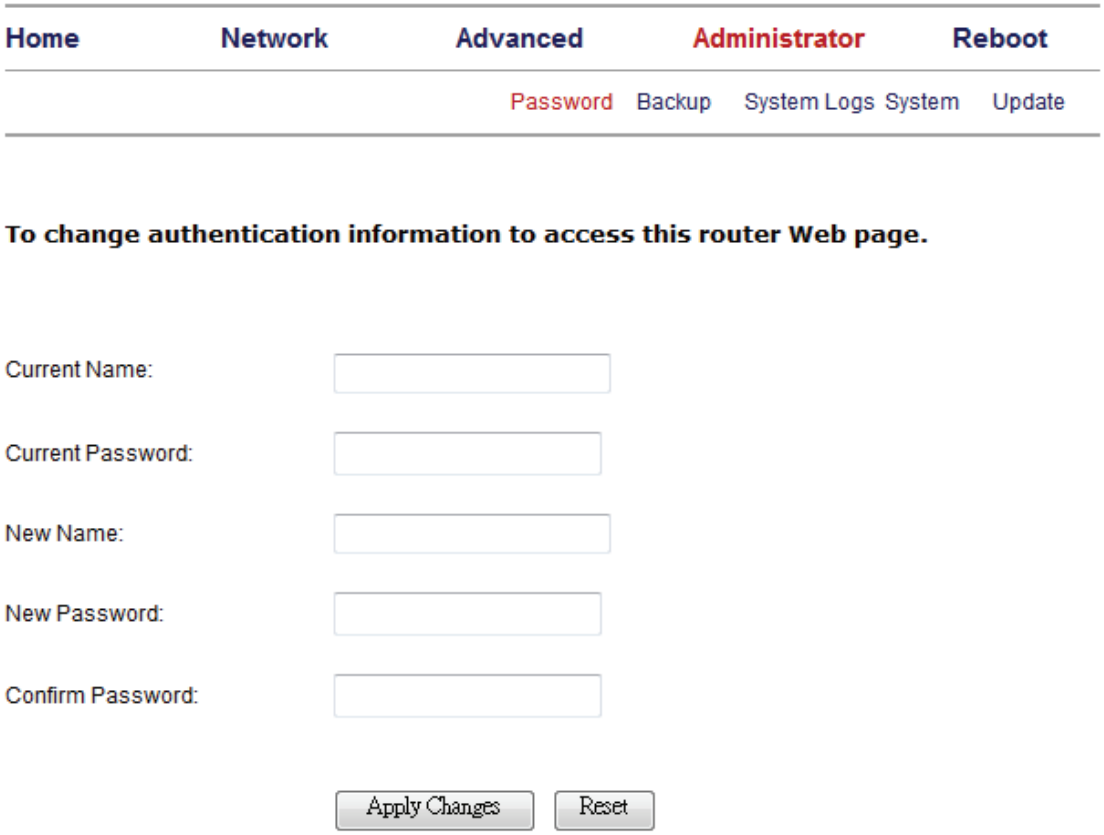
In most of cases, the Network Operator will assign a Dynamic IP address to Router upon connection. To avoid tracing IP, the Router can link to DDNS service. For example, if you have applied for a service from www.dyndns.com and the registered address is 350C.dyndns.com. Then every time when Router powers on, it will register to www.dyndns.com. All you need is to type-in 350C.dyndns.com to login this router.

When DDNS is enabled:
Domain name: Enter the name has been applied.
Username/E-mail: Enter user name or e-mail. This depends on your DDNS service requirement. If it needs e-mail to login, then type-in e-mail address only.
Password/key: Enter password or key.



Administrator Settings – Name and Password

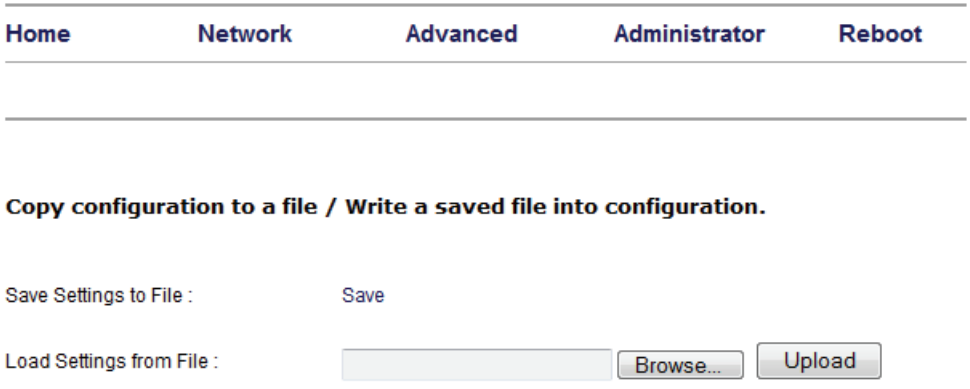
Allows you to change the name and password for the Router.



Administrator Settings – Saving Configuration.

Save: Select Save to save current setting as a file.

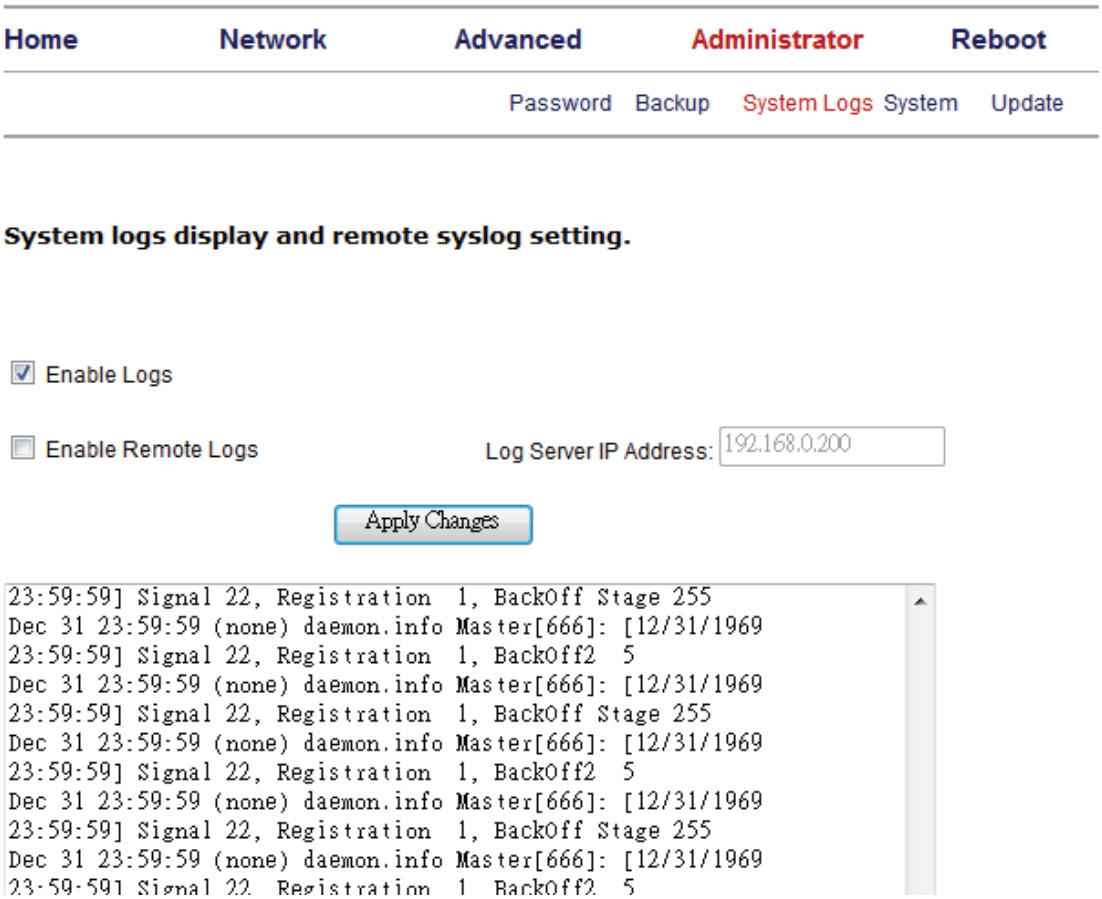
Load settings from File: Point to file location, click upload to load settings which have previously been saved



Administrator Settings -System Logs

Enable log: Log file will shows on log screen.

Enable Remote Logs: Log file will send to the remote address which shows on **Log Server IP Address.**


Home
Network
Advanced
Administrator
Reboot
Password
Backup
System Logs
System
Update
System logs display and remote syslog setting.
Enable Logs
Enable Remote Logs
Log Server IP Address:
192.168.0.200
Apply Changes
23:59:59] Signal 22, Registration 1, BackOff Stage 255
Dec 31 23:59:59 (none) daemon.info Master[666]: [12/31/1969
23:59:59] Signal 22, Registration 1, BackOff2 5
Dec 31 23:59:59 (none) daemon.info Master[666]: [12/31/1969
23:59:59] Signal 22, Registration 1, BackOff Stage 255
Dec 31 23:59:59 (none) daemon.info Master[666]: [12/31/1969
23:59:59] Signal 22, Registration 1, BackOff2 5
Dec 31 23:59:59 (none) daemon.info Master[666]: [12/31/1969
23:59:59] Signal 22, Registration 1, BackOff Stage 255
Dec 31 23:59:59 (none) daemon.info Master[666]: [12/31/1969

Administrator Settings - System

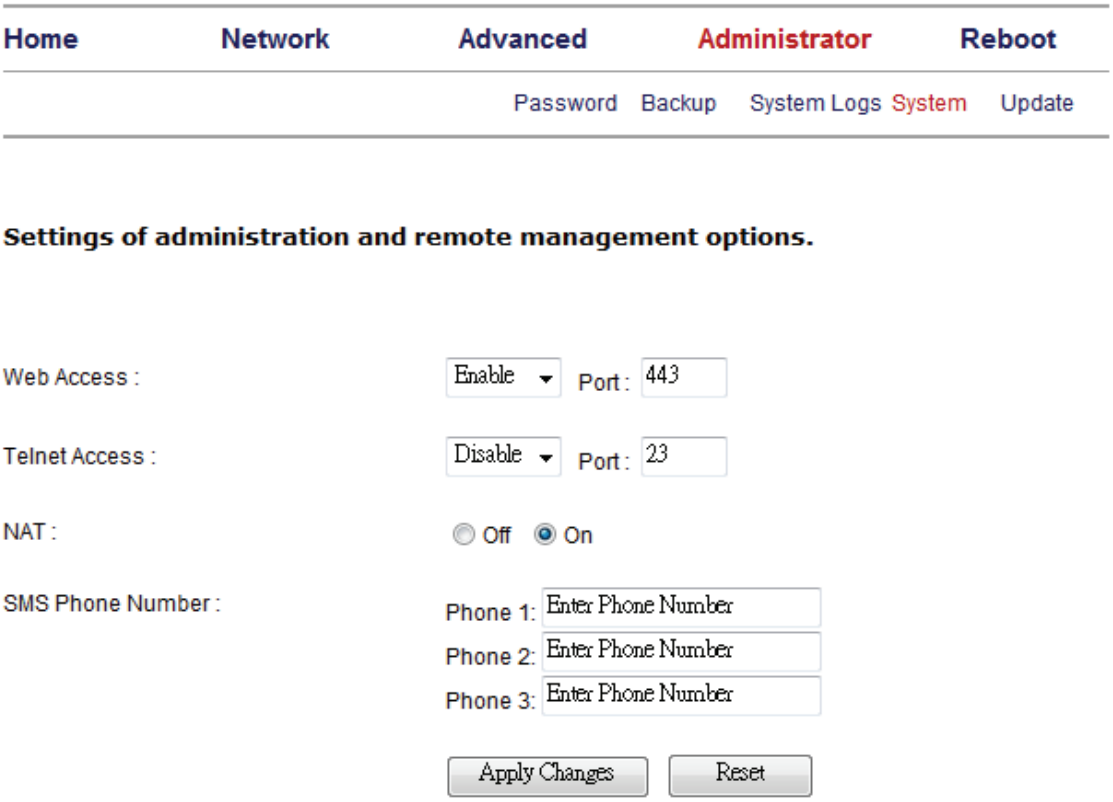
This section is to setup Router system.

Web Access: Enable web access. When user needs to login Web address should be https://192.168.0.1/home.asp

Telnet Access: If Telnet Access is enabled, please specify which port is used for Telnet. Default is port 23.

NAT: Default is NAT router.

SMS Phone Number: If the router receives an SMS "REBOOT" message from any registered phone number it will cause the router to reboot. 3 different cellular phone numbers can be registered.

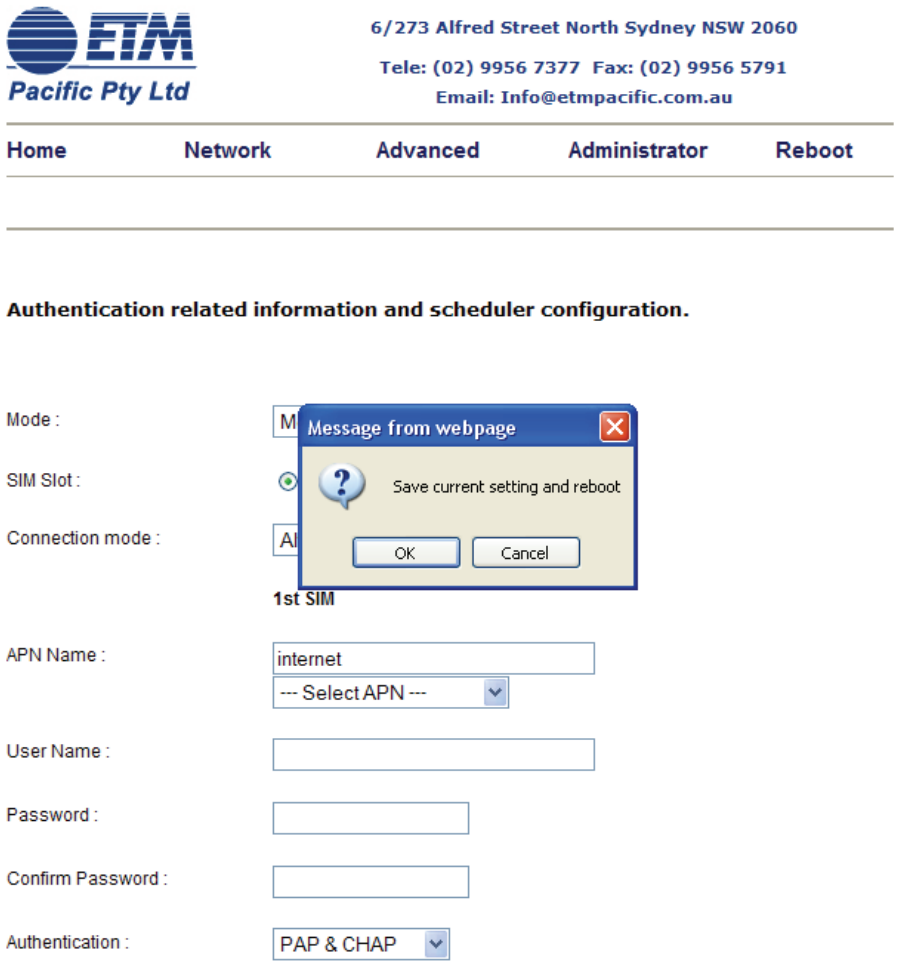


Administrator Settings - Update

Contact ETM should a firmware upgrade be required.

Reboot

Reboot: When Reboot is clicked, it will pop up a dialog box for **Save current setting and reboot.** Click OK, and the router will save settings and reboot.



SMS Commands for ETM350C/450C Router

SMS Command	Action	Typical Response
DSR.REBOOT	When received by the router the unit will respond via SMS then reboot	Router will reboot now. Please wait….
DSR.NETINFO	Unit will respond with network status, IP address	SIM:1, IP:58.104.69.177, APN:internet, ID:user, PW:password, Auth:PAP and CHAP, Sig:15
DSR.SIM=X	Set SIM slot to 1 or 2, where X=1 or 2	If X is already active then it responds: SIM X OK If not the unit responds: SIM X Switched
DSR.SIM=X,APN,ID,PASSWORD, Authentication,Dialup Number	Changes and sets SIM slot and applicable ISP dialup settings	SIM X settings have been changed

Note:

1. *Above SMS commands are case sensitive and your phone number must be in the units phone book*

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